

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 10-294876

(43)Date of publication of application : 04.11.1998

(51)Int.Cl.

H04N 1/60  
B41J 2/525  
G06T 1/00  
H04N 1/40  
H04N 1/46

(21)Application number : 09-100672

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(22)Date of filing : 17.04.1997

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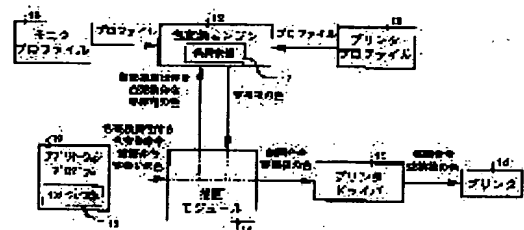
(54) DEVICE, METHOD FOR PROCESSING COLOR CONVERSION, AND COMPUTER READABLE RECORDING MEDIUM RECORDING PROGRAM FOR EXECUTING THE SAME THROUGH COMPUTER

(57)Abstract:

**PROBLEM TO BE SOLVED:** To attain processing suitable for each plotting color while positively avoiding a matching error by executing or not executing color matching processing through a color converting means while using a previously designated color matching method based on the judgement of whether it is the same color as a specified color or not at a color discriminating means for each plotting color.

**SOLUTION:** Among instructions from an application program 10, a color converting instruction with plotting color information and color converting attribute is outputted to a color converting engine 12 by a plotting module 11. Based on the color converting attribute in the color converting instruction, the color converting engine 12 selects the relevant color matching method and based on the plotting color information, a color discriminating part 17 discriminates whether the plotting color is equal with the specified color or not.

Corresponding to this discriminated result, the color converting engine 12 operates a printer 14 through the plotting module 11 and a printer driver 13 without or while executing the color matching processing to the plotting color information. Thus, a suitable printer output can be provided.



## LEGAL STATUS

[Date of request for examination]

19.03.2002

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 3764797

[Date of registration] 27.01.2006

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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## CLAIMS

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[Claim(s)]

[Claim 1] So that the color picture information containing at least one candidate for drawing may be inputted and the color reproduction property of a color picture output unit may be matched In the color transform-processing equipment which performs color matching processing to said color picture information using the color matching approach specified beforehand A color judging means to judge whether said drawing color is the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in said inputted color picture information, When judged with it not being the same as that of said specific color with said color judging means, color matching processing is performed to the drawing color concerned using said color matching approach specified beforehand. Color transform-processing equipment characterized by equipping the drawing color concerned with a color conversion means to be made not to perform color matching processing when judged with it being the same as that of said specific color with said color judging means.

[Claim 2] When said color matching approach is specified for said every candidate for drawing, said color judging means It judges whether said drawing color is the same as said specific color for said every candidate for drawing. Said color conversion means As opposed to the drawing color judged that is not the same as that of said specific color with said color judging means Color transform-processing equipment according to claim 1 characterized by performing color matching processing using said color matching approach, and performing color matching processing to the drawing color judged that is the same as that of said specific color with said color judging means.

[Claim 3] So that the color picture information containing at least one candidate for drawing may be inputted and the color reproduction property of a color picture output unit may be matched In the color transform-processing equipment which performs color matching processing to said color picture information using the color matching approach specified beforehand A color judging means to judge whether said drawing color is the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in said inputted color picture information, When judged with it not being the same as that of said specific color with said color judging means, color matching processing is performed to the drawing color concerned using said color matching approach specified beforehand. Color transform-processing equipment characterized by having a color conversion means to perform color matching processing to the drawing color concerned by the approach of being different from said color matching approach

specified beforehand based on the information set up beforehand when judged with it being the same as that of said specific color with said color judging means.

[Claim 4] When said color matching approach is specified for said every candidate for drawing, said color judging means It judges whether said drawing color is the same as said specific color for said every candidate for drawing. Said color conversion means As opposed to the drawing color judged that is not the same as that of said specific color with said color judging means Color matching processing is performed using said specified color matching approach. Color transform-processing equipment according to claim 3 characterized by performing color matching processing by different approach from said specified color matching approach to the drawing color judged that is the same as that of said specific color with said color judging means.

[Claim 5] Furthermore, said color judging means is color transform-processing equipment of any one publication of claim 1-4 characterized by judging whether the drawing color of the alphabetic character concerned is the same as said specific color when judged with said candidate for drawing being an alphabetic character with said alphabetic character judging means including an alphabetic character judging means to judge whether the candidate for drawing in said color picture information is an alphabetic character.

[Claim 6] Said specific color is color transform-processing equipment according to claim 2 or 4 characterized by what is beforehand specified for said every candidate for drawing.

[Claim 7] The color matching approach for said drawing color judged that is the same as that of said specific color with said color judging means is color transform-processing equipment according to claim 4 characterized by what is beforehand specified for said every candidate for drawing.

[Claim 8] It is color transform-processing equipment of any one publication of claim 1-5 characterized by for said color picture output unit being a color printer, and said specific color being a color corresponding to the primary color of the coloring material used for said color printer.

[Claim 9] Said specific color is color transform-processing equipment of any one publication of claim 1-5 characterized by being cyanogen, a Magenta, yellow, black, red, Green, blue, and White.

[Claim 10] Furthermore, color transform-processing equipment of any one publication of claim 1-7 characterized by having an assignment means to specify the color of arbitration as said specific color, based on the information set up beforehand.

[Claim 11] Said assignment means is color transform-processing equipment according to claim 10 characterized by specifying the color matching approach of arbitration as said color matching approach based on the information set up further beforehand.

[Claim 12] Said assignment means is color transform-processing equipment according to claim 11 characterized by specifying the color matching approach of said arbitration for every candidate for drawing included in said color picture information.

[Claim 13] Said assignment means is color transform-processing equipment of any one publication of claim 10-12 characterized by being prepared in the application program which generates said color picture information.

[Claim 14] Said assignment means is color transform-processing equipment of any one publication of claim 10-12 characterized by being prepared in the device driver which outputs said color picture information to said color picture output unit.

[Claim 15] So that the color picture information containing at least one candidate for drawing may be inputted and the color reproduction property of a color picture output unit may be matched In the color transform-processing approach for performing color matching processing to said color picture information using the color matching approach specified beforehand The color judging process of judging whether said drawing color being the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in said inputted color picture information, The 1st color conversion process which performs color matching processing to the drawing color concerned using said color matching approach specified beforehand when judged with it not being the same as that of said specific color at said

color judging process, The color transform-processing approach characterized by including the 2nd color conversion process which is made not to perform color matching processing in the drawing color concerned when judged with it being the same as that of said specific color at said color judging process.

[Claim 16] When said color matching approach is specified for said every candidate for drawing, said color judging process It judges whether said drawing color is the same as said specific color for said every candidate for drawing. Said 1st color conversion process Color matching processing is performed using said color matching approach to the drawing color judged that is not the same as that of said specific color at said color judging process. Said 2nd color conversion process The color transform-processing approach according to claim 15 characterized by performing color matching processing to the drawing color judged that is the same as that of said specific color at said color judging process.

[Claim 17] So that the color picture information containing at least one candidate for drawing may be inputted and the color reproduction property of a color picture output unit may be matched In the color transform-processing approach for performing color matching processing to said color picture information using the color matching approach specified beforehand The color judging process of judging whether said drawing color being the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in said inputted color picture information, The 1st color conversion process which performs color matching processing to the drawing color concerned using said color matching approach specified beforehand when judged with it not being the same as that of said specific color at said color judging process, The color transform-processing approach characterized by including the 2nd color conversion process which performs color matching processing to the drawing color concerned by the approach of being different from said color matching approach specified beforehand based on the information set up beforehand when judged with it being the same as that of said specific color at said color judging process.

[Claim 18] When said color matching approach is specified for said every candidate for drawing, said color judging process It judges whether said drawing color is the same as said specific color for said every candidate for drawing. Said 1st color conversion process Color matching processing is performed using said specified color matching approach to the drawing color judged that is not the same as that of said specific color at said color judging process. Said 2nd color conversion process The color transform-processing approach according to claim 17 characterized by performing color matching processing by different approach from said specified color matching approach to the drawing color judged that is the same as that of said specific color at said color judging process.

[Claim 19] Furthermore, said color judging process is the color transform-processing approach of any one publication of claim 15-18 characterized by judging whether the drawing color of the alphabetic character concerned is the same as said specific color when judged with said candidate for drawing being an alphabetic character at said alphabetic character judging process including the alphabetic character judging process of judging whether the candidate for drawing in said color picture information being an alphabetic character.

[Claim 20] Said specific color is the color transform-processing approach according to claim 16 or 18 characterized by what is beforehand specified for said every candidate for drawing.

[Claim 21] The color matching approach for said drawing color judged that is the same as that of said specific color at said color judging process is the color transform-processing approach according to claim 18 characterized by what is beforehand specified for said every candidate for drawing.

[Claim 22] It is the color transform-processing approach of any one publication of claim 15-19 characterized by for said color picture output unit being a color printer, and said specific color being a color corresponding to the primary color of the coloring material used for said color printer.

[Claim 23] Said specific color is the color transform-processing approach of any one publication of claim 15-19 characterized by being cyanogen, a Magenta, yellow, black, red, Green, blue, and White.

[Claim 24] Furthermore, the color transform-processing approach of any one publication of claim 15-21 characterized by including the assignment process for specifying the color of arbitration as said specific color based on the information set up beforehand.

[Claim 25] Said assignment process is the color transform-processing approach according to claim 24 characterized by specifying the color matching approach of arbitration as said color matching approach based on the information set up further beforehand.

[Claim 26] Said assignment process is the color transform-processing approach according to claim 25 characterized by specifying the color matching approach of said arbitration for every candidate for drawing included in said color picture information.

[Claim 27] The record medium which recorded the program which makes a computer perform the color transform-processing approach of any one publication of said claim 15-26 and in which computer reading is possible.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is based on what kind of color the drawing color for drawing candidates for drawing, such as a bitmapped image, an alphabetic character, and a graphic image, is. [ whether color matching processing is performed to this drawing color, and ] Or it judges whether color matching processing is performed to this drawing color by which approach. It is related with the record medium which recorded the program which makes the color transform-processing equipment carried out for the ability performing color matching processing of having been suitable for the drawing color, and its approach list perform the approach to a computer and in which computer reading is possible.

[0002]

[Description of the Prior Art] Since the image displayed on the color monitor is correctly outputted to a color printer, current research of the color matching method using a device-independent color is done. This color matching method aims at performing color reproduction which was in agreement in colorimetry among various devices by using a chrominance signal independent of a device in-between. general -- a device -- an independent chrominance signal -- CIE 1931 The signal suitable for the vision property of human being like a XYZ signal or a L\*a\*b\* signal is used.

[0003] However, generally the color reproduction which human being looks at and is regarded as desirable changes with classes of images, such as a natural image, an alphabetic character, and a poor image. Therefore, in order to output color picture information including various image kinds, according to the document structure included in a color picture, the architecture which can switch color processing is needed.

[0004] Although the technique which changes color processing according to the document structure included in the above-mentioned color picture is indicated, there is JP,7-107312,A

"the color information processing approach and equipment" as an example. This color information processing approach and equipment set up the attribute information on color matching that the application program was suitable for every image kind, and perform color matching processing with the optimal processing section of color matching in a device driver or a printer according to that attribute information.

[0005]

[Problem(s) to be Solved by the Invention] However, although the technique currently indicated by JP,7-107312,A "the color information processing approach and equipment" change the color matching approach for every candidate for drawing had the advantage of having become possible to use the optimal color matching approach for every candidate for drawing, it had the problem that where of the matching error generated in a specific color could not still be prevented, by performing color matching processing. The matching error means things in case a solid (black of maximum density) black alphabetic character is not reproduced with original black, when performing color matching processing uniformly to the document image which consists only of an alphabetic character of for example, two or more colors is considered. This is because the effect of a location gap of each color will be conspicuous and desired black will be reproduced, if color matching processing is performed to a black coloring material and coincidence at a line drawing like an alphabetic character or a ruled line in a color picture output unit like a laser beam printer or an ink jet printer which reproduces black for the coloring material of two or more colors in piles. Therefore, it is desirable for an observer not to perform color matching processing to a sensitive specific color about the specific color or error which a matching error tends to produce, or to apply the special color matching approach. In addition, it is more desirable to have not applied color matching to solid black, but to draw in black coloring-material Isshiki.

[0006] Moreover, since it was generally difficult to develop the color matching approach which reproduces all colors best, i.e., the device profile which reproduces all colors best, and a color transform engine, the precision of color matching processing had the problem that dispersion might arise by the color.

[0007] Furthermore, in an output unit side, such as a color printer, two or more (for example, cyanogen, MAZENDA, yellow, black) preparation of the coloring materials (ink, toner, etc.) used as primary color is carried out, and in order to raise output quality, the color number tends to increase. Since coloring of a coloring material is optimized to such primary colors (primary color), even if an error with the color on a monitor arises, the direction to which do not apply matching namely, which outputs it with primary color looks skillfully and is sometimes desirable. When the color picture output unit has a yellow coloring material especially, it may not match to the solid yellow on a monitor, and may look finely [ direction ] for a user having outputted in the yellow of a coloring material itself.

[0008] It judges whether this invention is made in view of the above, uses which approach for whether color matching processing is performed to this drawing color, and this drawing color based on what kind of color the drawing color for drawing candidates for drawing, such as a bitmapped image, an alphabetic character, and a graphic image, is, and performs color matching processing, and it aims at enabling it to carry out color matching processing in which it was suitable for every drawing color.

[0009]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the color transform-processing equipment of claim 1 So that the color picture information containing at least one candidate for drawing may be inputted and the color reproduction property of a color picture output unit may be matched In the color transform-processing equipment which performs color matching processing to said color picture information using the color matching approach specified beforehand A color judging means to judge whether said drawing color is the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in said inputted color picture information, When judged with it not being the same as that of said specific color with said color judging means, color matching processing is performed to the drawing color concerned using said color matching approach specified beforehand. When judged with it being the same as that of said specific color with said color

judging means, the drawing color concerned is equipped with a color conversion means to be made not to perform color matching processing.

[0010] When said color matching approach is specified for said every candidate for drawing, in color transform-processing equipment according to claim 1, the color transform-processing equipment of claim 2 moreover, said color judging means It judges whether said drawing color is the same as said specific color for said every candidate for drawing. Said color conversion means As opposed to the drawing color judged that is not the same as that of said specific color with said color judging means Color matching processing is performed using said color matching approach, and it is made not to perform color matching processing to the drawing color judged that is the same as that of said specific color with said color judging means.

[0011] Moreover, so that the color transform-processing equipment of claim 3 may input the color picture information containing at least one candidate for drawing and the color reproduction property of a color picture output unit may be matched In the color transform-processing equipment which performs color matching processing to said color picture information using the color matching approach specified beforehand A color judging means to judge whether said drawing color is the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in said inputted color picture information, When judged with it not being the same as that of said specific color with said color judging means, color matching processing is performed to the drawing color concerned using said color matching approach specified beforehand. When judged with it being the same as that of said specific color with said color judging means, based on the information set up beforehand, the drawing color concerned is equipped with a color conversion means to perform color matching processing, by said color matching approach specified beforehand and different approach.

[0012] When said color matching approach is specified for said every candidate for drawing, in color transform-processing equipment according to claim 3, the color transform-processing equipment of claim 4 moreover, said color judging means It judges whether said drawing color is the same as said specific color for said every candidate for drawing. Said color conversion means As opposed to the drawing color judged that is not the same as that of said specific color with said color judging means Color matching processing is performed using said specified color matching approach, and color matching processing is performed by said specified color matching approach and different approach to the drawing color judged that is the same as that of said specific color with said color judging means.

[0013] Moreover, the color transform-processing equipment of claim 5 is set to the color transform-processing equipment of any one publication of claim 1-4. Furthermore, when judged with said candidate for drawing of said color judging means being an alphabetic character with said alphabetic character judging means including an alphabetic character judging means to judge whether the candidate for drawing in said color picture information is an alphabetic character, it judges whether the drawing color of the alphabetic character concerned is the same as said specific color.

[0014] Moreover, in color transform-processing equipment according to claim 2 or 4, said specific color is beforehand specified for the color transform-processing equipment of claim 6 for said every candidate for drawing.

[0015] Moreover, the color matching approach for said drawing color with which it judged that the color transform-processing equipment of claim 7 is the same as that of said specific color with said color judging means in color transform-processing equipment according to claim 4 is beforehand specified for said every candidate for drawing.

[0016] Moreover, in the color transform-processing equipment of any one publication of claim 1-5, said color picture output unit of the color transform-processing equipment of claim 8 is a color printer, and said specific color is a color corresponding to the primary color of the coloring material used for said color printer.

[0017] Moreover, in the color transform-processing equipment of any one publication of claim 1-5, said specific colors of the color transform-processing equipment of claim 9 are cyanogen, a Magenta, yellow, black, red, Green, blue, and White.

[0018] Moreover, the color transform-processing equipment of claim 10 is equipped with an

assignment means to specify the color of arbitration as said specific color, based on the information set up further beforehand in the color transform-processing equipment of any one publication of claim 1-7.

[0019] Moreover, the color transform-processing equipment of claim 11 specifies the color matching approach of arbitration as said color matching approach in color transform-processing equipment according to claim 10 based on the information to which said assignment means was set further beforehand.

[0020] Moreover, the color transform-processing equipment of claim 12 specifies the color matching approach of said arbitration in color transform-processing equipment according to claim 11 for every candidate for drawing in which said assignment means is included in said color picture information.

[0021] Moreover, said assignment means is formed in the application program with which the color transform-processing equipment of claim 13 generates said color picture information in the color transform-processing equipment of any one publication of claim 10-12.

[0022] Moreover, said assignment means is formed in the device driver by which the color transform-processing equipment of claim 14 outputs said color picture information to said color picture output unit in the color transform-processing equipment of any one publication of claim 10-12.

[0023] Moreover, so that the color transform-processing approach of claim 15 may input the color picture information containing at least one candidate for drawing and the color reproduction property of a color picture output unit may be matched In the color transform-processing approach for performing color matching processing to said color picture information using the color matching approach specified beforehand The color judging process of judging whether said drawing color being the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in said inputted color picture information, The 1st color conversion process which performs color matching processing to the drawing color concerned using said color matching approach specified beforehand when judged with it not being the same as that of said specific color at said color judging process, When judged with it being the same as that of said specific color at said color judging process, the 2nd color conversion process which is made not to perform color matching processing is included in the drawing color concerned.

[0024] When said color matching approach is specified for said every candidate for drawing, in the color transform-processing approach according to claim 15, the color transform-processing approach of claim 16 moreover, said color judging process It judges whether said drawing color is the same as said specific color for said every candidate for drawing. Said 1st color conversion process Color matching processing is performed using said color matching approach to the drawing color judged that is not the same as that of said specific color at said color judging process. Said 2nd color conversion process It is made not to perform color matching processing at said color judging process to the drawing color judged that is the same as that of said specific color.

[0025] Moreover, so that the color transform-processing approach of claim 17 may input the color picture information containing at least one candidate for drawing and the color reproduction property of a color picture output unit may be matched In the color transform-processing approach for performing color matching processing to said color picture information using the color matching approach specified beforehand The color judging process of judging whether said drawing color being the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in said inputted color picture information, The 1st color conversion process which performs color matching processing to the drawing color concerned using said color matching approach specified beforehand when judged with it not being the same as that of said specific color at said color judging process, When judged with it being the same as that of said specific color at said color judging process, based on the information set up beforehand, the 2nd color conversion process which performs color matching processing is included in the drawing color concerned by said color matching approach specified beforehand and different approach.



[0026] When said color matching approach is specified for said every candidate for drawing, in the color transform-processing approach according to claim 17, the color transform-processing approach of claim 18 moreover, said color judging process It judges whether said drawing color is the same as said specific color for said every candidate for drawing. Said 1st color conversion process Color matching processing is performed using said specified color matching approach to the drawing color judged that is not the same as that of said specific color at said color judging process. Said 2nd color conversion process Color matching processing is performed by different approach from said specified color matching approach to the drawing color judged that is the same as that of said specific color at said color judging process.

[0027] Moreover, the color transform-processing approach of claim 19 is set to the color transform-processing approach of any one publication of claim 15-18. Furthermore, when judged with said candidate for drawing of said color judging process being an alphabetic character at said alphabetic character judging process including the alphabetic character judging process of judging whether the candidate for drawing in said color picture information being an alphabetic character, it judges whether the drawing color of the alphabetic character concerned is the same as said specific color.

[0028] Moreover, in the color transform-processing approach according to claim 16 or 18, said specific color is beforehand specified for the color transform-processing approach of claim 20 for said every candidate for drawing.

[0029] Moreover, the color matching approach for said drawing color from which it judged that the color transform-processing approach of claim 21 is the same as that of said specific color at said color judging process in the color transform-processing approach according to claim 18 is beforehand specified for said every candidate for drawing.

[0030] Moreover, in the color transform-processing approach of any one publication of claim 15-19, said color picture output unit of the color transform-processing approach of claim 22 is a color printer, and said specific color is a color corresponding to the primary color of the coloring material used for said color printer.

[0031] Moreover, in the color transform-processing approach of any one publication of claim 15-19, said specific colors of the color transform-processing approach of claim 23 are cyanogen, a Magenta, yellow, black, red, Green, blue, and White.

[0032] Moreover, the color transform-processing approach of claim 24 includes the assignment process for specifying the color of arbitration as said specific color based on the information set up further beforehand in the color transform-processing approach of any one publication of claim 15-21.

[0033] Moreover, the color transform-processing approach of claim 25 specifies the color matching approach of arbitration as said color matching approach in the color transform-processing approach according to claim 24 based on the information to which said assignment process was set further beforehand.

[0034] Moreover, the color transform-processing approach of claim 26 specifies the color matching approach of said arbitration in the color transform-processing approach according to claim 25 for every candidate for drawing in which said assignment process is included in said color picture information.

[0035] Furthermore, the record medium which claim 27 can computer read records the program which makes a computer perform the color transform-processing approach of any one publication of said claim 15-26.

[0036]

[Embodiment of the Invention] The gestalt of operation of the record medium which recorded hereafter the program which makes the color transform-processing equipment and its approach list of this invention perform the approach to a computer and in which computer reading is possible is explained to a detail, referring to an attached drawing.

[0037] [Gestalt 1 of operation] The gestalt 1 of operation explains the color transform-processing equipment at the time of using the application program corresponding to color matching on a computer, and its approach.

[0038] Drawing 1 is the block block diagram of the color transform-processing equipment of the

gestalt 1 of operation. drawing 1 -- setting -- 10 -- an application program -- 11 -- a drawing module -- in 12, 13 shows a printer driver and 14 shows the printer for the color transform engine, respectively.

[0039] An application program 10 can create the color picture information containing the candidate for drawing of a bitmapped image, an alphabetic character, and a graphic image. This application program 10 supports color matching. I hear that color conversion attributes, such as a contrast preservation mold, a lightness preservation mold, and a saturation preservation mold, can be set up for every candidate for drawing as the application program supports color matching here, and it is. Consequently, the color conversion command which added the above-mentioned color conversion attribute for performing color matching processing to the drawing color information which shows the drawing color for drawing a drawing instruction (print instruction) and the candidate for drawing about every [ which was created / for / each / drawing ], and its drawing color can be outputted. In addition, a user can perform a setup of a color conversion attribute etc. through the interface section 18.

[0040] The drawing module 11 is formed in an operating system, and controls the drawing processing to color picture output units, such as a monitor and a printer. And in order that the drawing module 11 may input the above-mentioned drawing instruction, drawing color information, and color conversion command from an application program 10 and may perform color matching processing, it outputs drawing color information and color conversion command to the color transform engine 12.

[0041] The color transform engine 12 is formed in an operating system, inputs the color picture information currently displayed on the printer profile 16 list which described the monitor profile 15 which described the color reproduction property of a monitor, and the color reproduction property of a printer 14 with the monitor (not shown), and it performs color matching processing to color picture information so that the color reproduction property of a printer 14 may be matched. And with the gestalt 1 of operation, in an application program 10, since a color conversion attribute can be set up for every candidate for drawing in color picture information, respectively, the color transform engine 12 can perform color matching processing using a different approach for every candidate for drawing based on the set-up color conversion attribute.

[0042] Moreover, the color transform engine 12 of the gestalt 1 of operation is equipped with the color judging section 17. This color judging section 17 holds the color information about the specific color (henceforth the "special feature") specified beforehand, and judges whether the drawing color for drawing is the same as that of the above-mentioned special feature based on the drawing color information outputted from the drawing module 11. Since a matching error may arise when color matching processing is performed to a certain specific color as mentioned above, the color which is easy to produce a matching error as a special feature is specified, and it judges whether the drawing color for drawing is the same as that of the special feature in the color judging section 17, and when the same as that of the special feature, in the color transform engine 12, carrying out the color matching processing to the drawing color is stopped.

[0043] The following colors are beforehand held as the above-mentioned special feature at the color judging section 17 of the gestalt 1 of operation. Let the 1st example be the primary color of a coloring material in which a printer 14 has the special feature. Since coloring of a coloring material is optimized about primary color (primary color), even if the primary color outputted by the printer 14 produces an error with the primary color on a monitor, the direction which does not perform color matching processing but is outputted with the primary color of a coloring material will look skillfully and be desirable.

[0044] Moreover, the 2nd example makes the special feature cyanogen, a Magenta, yellow, black, red, Green, blue, and White (solid one or solid one, and these low concentration colors are included). Since the error of color matching generally tends to become large, as for the color according to primary color or them, such as cyanogen, a Magenta, yellow, black, red, Green, blue, and White, specifying as a special feature is desirable.

[0045] Moreover, a printer driver 13 inputs the drawing color information that drawing instruction and color matching processing were performed from the drawing module 11, changes a drawing

instruction into the drawing instruction of printer 14 proper, and outputs it to a printer 14 with drawing color information.

[0046] Furthermore, a printer 14 may be which class as long as a laser beam printer, an ink jet printer, etc. can print color picture information.

[0047] Next, the color transform-processing approach of the gestalt 1 operation is explained. Drawing 2 is a flow chart which shows the flow of the whole color transform-processing approach.

[0048] An application program 10 outputs a drawing instruction, drawing color information, and color conversion command with a color conversion attribute to the drawing module 11 for every candidate for created drawing (S201).

[0049] The drawing module 11 inputs the drawing instruction for drawing, drawing color information, and color conversion command with a color conversion attribute from an application program 10, and outputs the drawing color information of them, and color conversion command with a color conversion attribute to the color transform engine 12 (S202).

[0050] Then, the color transform engine 12 performs color matching processing to drawing color information based on color conversion command (S203). Here, the color matching processing by the color transform engine 12 in step S203 is explained using the flow chart of drawing 3.

[0051] The color transform engine 12 will choose the corresponding color matching approach based on the color conversion attribute added to color conversion command, if color conversion command and drawing color information are inputted from the drawing module 11 (S301).

[0052] And the color judging section 17 carries out a drawing color information input, and judges whether a drawing color is the special feature based on the drawing color information that it inputted (S302).

[0053] In step S302, when a drawing color is not the same as that of the special feature, the color judging section 17 outputs a judgment result to the color transform engine 12. The color transform engine 12 performs color matching processing to the drawing color information that it inputted, according to the judgment result of the color judging section 17 (S303). And the color transform engine 12 outputs the drawing color information that color matching processing was performed to the drawing module 11.

[0054] On the other hand, in step S302, when a drawing color is the same as that of the special feature, the color judging section 17 outputs a judgment result to the color transform engine 12. The color transform engine 12 outputs drawing color information to the drawing module 11 as it is, without performing color matching processing to the drawing color information that it inputted, according to the judgment result of the color judging section 17.

[0055] And it returns to explanation of drawing 2 again. The drawing module 11 inputs the drawing color information that the drawing color information or color matching processing in which color matching processing was performed from the color transform engine 12 was not performed, and outputs it to a printer driver 13 with a drawing instruction (S204).

[0056] A printer driver 13 inputs a drawing instruction and drawing color information, changes a drawing instruction into the drawing instruction of printer 14 proper, and outputs it to a printer 14 with drawing color information (S205).

[0057] Thus, in order according to the color transform-processing equipment of the gestalt 1 of operation, and its approach to judge whether the drawing color for drawing the candidate for drawing is the same as that of the special feature as which the color which a matching error tends to produce was specified, and not to perform color matching processing in being the same as that of the special feature in case color matching processing is performed, a matching error can avoid positively and a suitable printer output can obtain.

[0058] In addition, in the color transform-processing equipment and the approach of a gestalt 1 of operation, when making applicable to drawing graphic images, such as a bar graph with which it was expressed in red, blue, and a yellow rectangle field, it will be judged about each of red, blue, and yellow whether it is the special feature. Here, although color matching processing is performed about blue and yellow when the special feature is red, it will be said about red that color matching processing is not performed. That is, in one candidate for drawing, the color to which color matching processing is performed, and the color which is not given may arise.

[0059] [Gestalt 2 of operation] The color transform-processing equipment of the gestalt 2 of operation enables a setup of the special feature within application 10. That is, although application 10 will be operated and the drawing attribute of the every for drawing will be set up in case it chooses that a user performs color matching processing, it enables a user to set up the special feature as one of the drawing attributes by extending the function of application 10.

[0060] In addition, about the whole color transform-processing equipment configuration of the gestalt 2 of operation, since it is the same as that of what is shown in drawing 1, the explanation is omitted here.

[0061] Drawing 4 is a flow chart which shows the processing which sets up the special feature for every candidate for drawing with application 10 in the color transform-processing equipment of the gestalt 2 of operation.

[0062] When a user specifies the drawing approach for [ a certain ] drawing (for example, rectangle) through the interface section 18 of an application program 10 In wishing the drawing color for drawing, and color matching, while specifying the color conversion attribute (or default value is used) corresponding to the candidate for drawing In specifying the existence (henceforth "the special-feature processing") of color matching to the special feature and specifying those with the special-feature processing, it specifies the special feature further if needed (S401). In addition, when the drawing colors for drawing are two or more colors, the number of the special features which can be specified is not restricted to one color.

[0063] And it judges whether an application program 10 has assignment of the special-feature processing in the candidate for drawing based on assignment of the user from the interface section 18 (S402). When there is no assignment of the special-feature processing, the processing which sets up the special feature is ended.

[0064] On the other hand, when there is assignment of the special-feature processing in step S402, it judges whether there is any assignment of the special feature (S403). In step S403, when there is assignment of the special feature, the special-feature setting instruction for setting the special feature as the color judging section 17 is generated (S404).

[0065] Moreover, in step S403, when there is no assignment of the special feature, the special-feature setting instruction which sets the default special feature which an application program 10 has as the color judging section 17 is generated (S405). However, when there is no assignment of the special feature, as the special feature is not set up from an application program 10 but the gestalt 1 of operation explained, you may decide to use the special feature beforehand set as the color judging section 17 of the color transform engine 12.

[0066] By making it possible to perform such special-feature processing and a setup of the special feature with an application program 10, it can feature the color of a user request every [ for drawing ].

[0067] Next, the color transform-processing approach based on the conditions set up by the above-mentioned special-feature processing is explained. In addition, since the flow of the whole color transform-processing approach of the gestalt 2 of operation is as being shown in drawing 2, it explains only color matching processing of step S203 of drawing 2 here.

[0068] Drawing 5 is a flow chart which shows the procedure of the color matching processing by the color transform engine 12 in the color transform-processing approach of the gestalt 2 operation.

[0069] The color transform engine 12 will choose the approach of the corresponding color matching processing based on the color conversion attribute added to color conversion command, if the color conversion command for drawing, drawing color information, and the special-feature setting instruction are inputted from the drawing module 11 (S501).

[0070] And the color judging section 17 inputs drawing color information and the special-feature setting instruction, and sets up the special feature based on the special-feature setting instruction which inputted (S502).

[0071] Then, it judges whether the color judging section 17 is the same as that of the special feature which the drawing color set up at step S502 based on the drawing color information that it inputted (S503).

[0072] In step S503, when a drawing color is not the same as that of the special feature, the

color judging section 17 outputs the result to the color transform engine 12. The color transform engine 12 performs color matching processing to the drawing color information that it inputted, according to the judgment result of the color judging section 17 (S504). Then, the color transform engine 12 outputs the drawing color information that color matching processing was performed to the drawing module 11.

[0073] On the other hand, in step S503, when a drawing color is the same as that of the special feature, the color judging section 17 outputs the result to the color transform engine 12. The color transform engine 12 outputs drawing color information to the drawing module 11, without performing color matching processing to the drawing color information that it inputted, according to the judgment result of the color judging section 17.

[0074] In addition, when two or more drawing colors are set as the candidate for drawing, only the number of the drawing colors which had processing of the above-mentioned steps S503 and S504 set up is performed, and the color matching processing about one candidate for drawing is ended. When there are two or more candidates for drawing, processing of the above-mentioned steps S501-S504 is repeated and performed for every candidate for drawing.

[0075] Thus, since the special feature can be set up for every candidate for drawing, the special-feature processing can be performed for every candidate for drawing, and it can avoid performing color matching processing about a desired color according to the color transform-processing equipment of the gestalt 2 of operation, and its approach. Therefore, since optimal color matching processing can be performed for every drawing color, generating of a matching error can be controlled.

[0076] When graphic images which expressed in red, blue, and a yellow rectangle field, such as a bar graph, are specifically made applicable to drawing and the special feature is set as yellow, color matching processing is performed about red and blue, and it can avoid performing color matching processing about yellow. Thus, a color to perform color matching processing in one candidate for drawing and a color not to give are distinguishable.

[0077] [Gestalt 3 of operation] the color transform-processing equipment of the gestalt 3 of operation, and its approach Based on the special feature mentioned above, perform color matching processing or it is not performed. It supposes that the color matching approach (approach specified by a user) beforehand specified about the drawing color which is not the same as that of the special feature is used, and processing changed into the more suitable color matching approach from the color matching approach defined beforehand is performed about the same drawing color as the special feature.

[0078] In addition, about the whole color transform-processing equipment configuration of the gestalt 3 of operation, it is the same as that of what is shown in drawing 1 , and since the flow of the whole actuation is as being shown in drawing 2 , it omits those explanation and explains only a different point.

[0079] Drawing 6 is a flow chart which shows the procedure of the color matching processing by the color transform engine 12 in the color transform-processing approach of the gestalt 3 operation. Here, the color judging section 17 has held beforehand the special feature which was explained with the gestalt 1 of operation, and when the special feature and drawing color which were set as the color judging section 17 are the same, the color transform engine 12 is constituted so that the color matching approach (here, it considers as a contrast preservation mold) of having been most suitable for the drawing color can be chosen.

[0080] The color transform engine 12 will choose the approach of the corresponding color matching processing based on the color conversion attribute added to color conversion command, if the color conversion command and drawing color information for drawing are inputted from the drawing module 11 (S601). Here, the color matching approach of a saturation preservation mold should be specified as a color conversion attribute, and the color transform engine 12 chooses this saturation preservation type of the color matching approach.

[0081] And the color judging section 17 judges whether a drawing color is the same as that of the special feature based on the drawing color information that inputted drawing color information and it inputted (S602).

[0082] In step S602, when a drawing color is not the same as that of the special feature, the

color judging section 17 outputs the result to the color transform engine 12. The color transform engine 12 performs color matching processing of a saturation preservation mold to the drawing color information that it inputted, according to the judgment result of the color judging section 17 (S603). Then, the color transform engine 12 outputs the drawing color information that color matching processing was performed to the drawing module 11.

[0083] On the other hand, in step S602, when a drawing color is the same as that of the special feature, the color judging section 17 outputs the result to the color transform engine 12.

According to the judgment result of the color judging section 17, the color transform engine 12 chooses the color matching approach of the contrast preservation mold set up beforehand (S604), uses the approach for the drawing color information that it inputted, and performs color matching processing (S605). And the color transform engine 12 outputs the drawing color information that color matching processing was performed to the drawing module 11.

[0084] About the candidate for drawing, when two or more drawing colors are set up, only the number of the drawing colors which had processing of the above-mentioned steps S602-S605 set up is performed, and the color matching processing about one candidate for drawing is ended. Moreover, when there are two or more candidates for drawing, processing of the above-mentioned steps S601-S605 is repeated and performed for every candidate for drawing.

[0085] Thus, according to the color transform-processing equipment of the gestalt 3 of operation, and its approach, since the color matching approach for the drawing color can be changed to the optimal color matching approach about the same color as the special feature when a drawing color is the same as that of the special feature, optimal color matching processing can be performed for every drawing color.

[0086] Graphic images which expressed in red, blue, and a yellow rectangle field, such as a bar graph, are made applicable to drawing. Namely, as the color matching approach for [ the ] drawing If it is when the color matching approach of for example, a saturation preservation mold is specified as the color conversion attribute About the red and blue which are not the special feature, color matching processing of a saturation preservation mold will be performed, and color matching processing of for example, a contrast preservation mold will be performed about the yellow which is the special feature. Thus, according to the color transform-processing equipment of the gestalt 3 of operation, and its approach, in one candidate for drawing, the color matching approach can be changed for every drawing color.

[0087] [Gestalt 4 of operation] A setup of the color matching approach for the same drawing color as the special feature and the special feature of the color transform-processing equipment of the gestalt 4 of operation is enabled within application 10. That is, although application 10 will be operated and the drawing attribute of the every for drawing will be set up in case it chooses that a user performs color matching processing, it enables a user to set up the color matching approach in the case of the special feature and the special feature as a drawing attribute by extending the function of application 10.

[0088] In addition, about the whole color transform-processing equipment configuration of the gestalt 4 of operation, since it is the same as that of what is shown in drawing 1, the explanation is omitted here.

[0089] Drawing 7 is a flow chart which shows the procedure of processing of setting up the color matching approach in the case of the special feature and the special feature for every candidate for drawing with application 10 in the color transform-processing approach of the gestalt 4 operation.

[0090] When a user specifies the drawing approach for [ through the interface section 18 of an application program 10 ] drawing (for example, rectangle) In wishing the drawing color for drawing, and color matching While specifying the color conversion attribute (or default value is used) corresponding to the candidate for drawing In specifying the existence (henceforth "the special-feature processing") of color matching to the special feature and specifying those with the special-feature processing, it specifies the color matching approach in the case of the special feature and the special feature further if needed (S701). In addition, when the drawing colors for drawing are two or more colors, two or more colors can be specified as a special feature.

[0091] And it judges whether an application program 10 has assignment of the special-feature

processing in the candidate for drawing based on assignment of the user from the interface section 18 (S702). When there is no assignment of the special-feature processing, the processing which sets up the special feature is ended.

[0092] On the other hand, when it judges with there being special-feature processing assignment in step S702, it judges whether there is any assignment of the special feature (S703). In step S703, when there is assignment of the special feature, the special-feature setting instruction for setting up the special feature is generated (S704). Moreover, in step S703, when there is no assignment of the special feature, the special-feature setting instruction which sets up the default special feature which an application program 10 has is generated (S705). In addition, you may decide to use the special feature beforehand set as the color judging section 17 of the color transform engine 12 here.

[0093] And it judges whether there is any assignment of the color matching approach for the special feature (S706). In step S706, when there is assignment to the special feature, the special-feature matching approach setting instruction for setting the color matching approach for the special feature as the color transform engine 12 is generated (S707). Moreover, in step S706, when there is no assignment of the color matching approach for the special feature, the special-feature matching approach setting instruction which sets up the default color matching approach which an application program 10 has is generated (S708). In addition, when there is no assignment of the color matching approach for the special feature, you may decide to use the color matching approach beforehand set as the color transform engine 12.

[0094] The color matching processing which a user desires is realizable by making it possible to perform the color matching approach for such special-feature processing, a setup of the special feature, and the special feature with an application program 10.

[0095] Next, the color matching processing based on the conditions set up by the above-mentioned setting processing is explained. In addition, since the flow of the color transform-processing approach of the gestalt 4 of operation is as being shown in drawing 2, it explains only color matching processing of step S203 of drawing 2 here.

[0096] Drawing 8 is a flow chart which shows the procedure of the color matching processing by the color transform engine in the color transform-processing approach of the gestalt 2 operation.

[0097] If the color conversion command about the candidate for drawing, drawing color information, the special-feature setting instruction, and the special-feature matching approach setting instruction input from a drawing module 11, while a color transform engine 12 will choose the approach of the corresponding color matching processing based on the color conversion attribute added to color conversion command, it sets up for the special features and it enables it to use the color matching approach correspond immediately based on a special-feature matching approach setting instruction (S801). Here, based on the color conversion attribute, the color matching approach of a saturation preservation mold should be chosen, and color matching processing of a contrast preservation mold should be set up based on the special-feature matching approach setting instruction.

[0098] And the color judging section 17 inputs drawing color information and the special-feature setting instruction, and sets up the special feature based on the special-feature setting instruction which inputted (S802).

[0099] Then, it judges whether the color judging section 17 is the same as that of the special feature which the drawing color set up at step S802 based on the drawing color information that it inputted (S803).

[0100] In step S803, when a drawing color is not the same as that of the special feature, the color judging section 17 outputs the result to the color transform engine 12. The color transform engine 12 performs color matching processing of a saturation preservation mold to the drawing color information that it inputted, according to the judgment result of the color judging section 17 (S804). Then, the color transform engine 12 outputs the drawing color information that color matching processing was performed to the drawing module 11.

[0101] On the other hand, in step S803, when a drawing color is the same as that of the special feature, the color judging section 17 outputs the result to the color transform engine 12. The



color transform engine 12 performs color matching processing to the drawing color information that chose the color matching approach of the contrast preservation mold set up beforehand (S805), and it was inputted using the selected approach, according to the judgment result of the color judging section 17 (S806). And the color transform engine 12 outputs the drawing color information that color matching processing was performed to the drawing module 11.

[0102] About the candidate for drawing, when two or more drawing colors are set up, only the number of the drawing colors which had processing of the above-mentioned steps S803-S806 set up is performed, and the color matching processing about one candidate for drawing is ended. When there are two or more candidates for drawing, processing of the above-mentioned steps S801-S806 is repeated and performed for every candidate for drawing.

[0103] Thus, according to the color transform-processing equipment of the gestalt 4 of operation, and its approach, since the color matching approach for the special feature and the special feature can be set up for every candidate for drawing, color matching processing can be performed for the drawing color and the special feature which are not the same as the special feature, and the same drawing color using the approach of arbitration for every candidate for drawing.

[0104] For example, by the case where graphic images which expressed in red, blue, and a yellow rectangle field, such as a bar graph, are made applicable to drawing, when the special feature is set as yellow, about red and blue, color matching processing of for example, a saturation preservation mold can be performed, and color matching processing of a contrast preservation mold can be performed about yellow. Therefore, in one candidate for drawing, color matching processing by different approach according to a drawing color can be performed, and color matching processing doubled with liking of a user can be performed.

[0105] [Gestalt 5 of operation] According to the color transform-processing equipment explained with the gestalten 1-4 of operation mentioned above, and its approach, it makes it possible to avoid a matching error about the special feature, but if an example is taken in the relation between the special feature and the color of the perimeter, when the special feature is used for a part of gradation, for example, evil may occur rarely. Although gradation means change of a continuous color, when not performing color matching to the special feature included in it, or when using the different matching approach from a surrounding color, it is because the continuity of gradation may be spoiled in the special-feature part.

[0106] The above-mentioned evil can prevent the generating by performing the special-feature processing only for the candidate for drawing without gradation. Since it consists of usual application programs so that gradation may not be applied to an alphabetic character (or the alphabetic character which gradation required is already treated as a part of graphics instead of alphabetic character), the above-mentioned evil is avoidable by limiting the candidate for drawing set as the object of the special-feature processing to an alphabetic character.

[0107] Drawing 9 is the block block diagram of the color transform-processing equipment of the gestalt 5 of operation. About the whole color transform-processing equipment configuration shown in drawing 9, although detailed explanation is omitted since it is almost the same as that of what is shown in drawing 1, based on the drawing instruction outputted from the application program 10, the alphabetic character judging section 90 which judges whether the candidate for drawing is an alphabetic character is formed in the drawing module 11 of the color transform-processing equipment shown in drawing 9.

[0108] In addition, in the gestalt 5 of operation, although it decided to form the alphabetic character judging section 90 in the drawing module 11, it may not limit to this and you may decide to prepare in the inside of the color transform engine 12, or the exterior of the color transform engine 12. In other words, the alphabetic character judging section 90 just judges whether the candidate for drawing is an alphabetic character, before color matching processing by the color transform engine 12 is performed.

[0109] Next, the color transform-processing approach of the gestalt 5 operation is explained. In addition, since it is as being shown in the flow, therefore drawing 2 of the whole color transform-processing approach, only step S203 of drawing 2 is explained here. Drawing 10 is a flow chart which shows the procedure of the color matching processing by the color transform engine 12 in



the color transform-processing approach of the gestalt 5 operation.

[0110] The alphabetic character judging section 90 inputs the drawing instruction about the candidate for drawing of the arbitration outputted from the application program 10, and judges whether the candidate for drawing is an alphabetic character based on the drawing instruction which inputted. And the alphabetic character judging section 90 outputs a judgment result to the color transform engine 12. This processing is performed before the processing shown in drawing 10.

[0111] The color transform engine 12 will choose the approach of the corresponding color matching processing based on the color conversion attribute added to color conversion command, if the color conversion command about the candidate for drawing and drawing color information are inputted from the drawing module 11 (S1001).

[0112] Then, the color transform engine 12 judges whether the candidate for drawing is an alphabetic character based on the judgment result inputted from the alphabetic character judging section 90 (S1002).

[0113] In step S1002, when the candidate for drawing is not an alphabetic character, it progresses to step S1004, and based on the color matching approach chosen at step S1001, color matching processing is performed to drawing color information, and it outputs to the drawing module 11 (S1004).

[0114] On the other hand, in step S1002, when the candidate for drawing is an alphabetic character, the special-feature judging instruction is outputted to the color judging section 17 from the color transform engine 12. And the color judging section 17 judges whether a drawing color is the same as that of the special feature based on the drawing color information that it inputted according to the special-feature judging instruction (S1003).

[0115] In step S1003, when a drawing color is not the same as that of the special feature, the color judging section 17 outputs the result to the color transform engine 12. The color transform engine 12 performs color matching processing to the drawing color information that it inputted, according to the judgment result of the color judging section 17 (S1004). Then, the color transform engine 12 outputs the drawing color information that color matching processing was performed to the drawing module 11.

[0116] On the other hand, in step S1003, when a drawing color is the same as that of the special feature, the color judging section 17 outputs the result to the color transform engine 12. The color transform engine 12 outputs drawing color information to the drawing module 11, without performing color matching processing to the drawing color information that it inputted, according to the judgment result of the color judging section 17.

[0117] Thus, according to the color transform-processing equipment of the gestalt 5 of operation, and its approach, it will judge whether the candidate for drawing is an alphabetic character, and will write to perform the special-feature processing only to an alphabetic character, the special-feature processing will be performed for the candidate for drawing which required gradation, and it can prevent that change of a color becomes discontinuity. Therefore, a matching error can be controlled and a natural printer output can be obtained.

[0118] [Gestalt 6 of operation] The gestalt 6 of operation explains the color transform-processing equipment at the time of using the printer driver corresponding to color matching on a computer, and its approach.

[0119] Drawing 11 is the block diagram of the color transform-processing equipment of the gestalt 6 of operation. drawing 11 -- setting -- 110 -- an application program -- 111 -- a drawing module -- in 112, 113 shows a color transform engine and 114 shows the printer for the printer driver, respectively.

[0120] In the gestalten 1-5 of operation, although premised on controlling color matching by the application program, even when it does not have the function in which an application program publishes color conversion command, it is possible to publish color conversion command within a device driver. As shown in drawing 11, the color transform engine 113 exists independently [ the drawing module 111 ] in an operating system, and the color matching processing facility also consists of printer drivers 112 so that it may be usable.

[0121] In drawing 11, an application program 110 can create the color picture information

containing the candidate for drawing of a bitmapped image, an alphabetic character, and a graphic image. This application program 110 outputs the drawing color information which shows the drawing color for drawing a drawing instruction (print instruction) and the candidate for drawing about every [ which was created / for / each / drawing ].

[0122] The drawing module 111 is formed in an operating system, and controls the drawing processing to color picture output units, such as a monitor and a printer. And from an application program 110, the drawing module 111 inputs the above-mentioned drawing instruction and drawing color information, and outputs the drawing instruction which inputted, and drawing color information to a printer driver 112.

[0123] The printer driver 112 is equipped with the interface section 118 (the screen which specifically sets up the size and the printing direction of paper, and screen in which the list of the set point is shown) to a user like the application program 10 explained with the gestalten 1-5 of operation. And existence of color matching and assignment of the color matching approach can be performed in the interface section 118.

[0124] Further, the printer driver 112 inputted drawing color information from the drawing module 111, and is equipped with the color judging section 117 which judges whether the drawing color for drawing is the special feature. In addition, about the function of the color judging section 117, since it is the same as that of the color judging section 17 explained with the gestalten 1-5 of operation, the explanation is omitted here.

[0125] And based on the judgment result of the color judging section 117, a printer driver 112 outputs the color conversion command and the drawing color information which added the attribute of the specified color matching approach to the color transform engine 113, when it is not the special feature, it changes the inputted drawing instruction into the drawing instruction of printer 114 proper, and outputs it to a printer 114 with the drawing color information after color matching processing. On the other hand, in being the special feature, a drawing instruction is changed into the drawing instruction of printer 114 proper, and it outputs to a printer 114 with drawing color information.

[0126] The color transform engine 113 is formed in an operating system, inputs the color picture information currently displayed on the printer profile 116 list which described the monitor profile 115 which described the color reproduction property of a monitor (not shown), and the color reproduction property of a printer 114 with the monitor (not shown), and it performs color matching processing to color picture information so that the color reproduction property of a printer 114 may be matched.

[0127] Furthermore, a printer 114 may be which class as long as a laser beam printer, an ink jet printer, etc. can print color picture information.

[0128] Next, the color transform-processing approach of the gestalt 6 operation is explained. Drawing 12 is a flow chart which shows the color transform-processing approach of the gestalt 6 operation.

[0129] An application program 110 outputs the drawing instruction about the candidate for drawing and drawing color information which were created to the drawing module 111, and outputs drawing instruction and drawing color information that the drawing module 111 inputted and inputted a drawing instruction and drawing color information to a printer driver 112. And a printer driver 112 inputs a drawing instruction and drawing color information from the drawing module 111 (S1201).

[0130] A printer driver 112 will judge whether there was any assignment with color matching from a user through the interface section 118, if a drawing instruction and drawing color information are inputted (S1202). When there is no assignment with color matching, it progresses to step S1206, a drawing instruction is changed into the drawing instruction of printer 114 proper, and it outputs to a printer 114 with drawing color information.

[0131] On the other hand, when there is assignment with color matching, a printer driver 112 outputs the special-feature judging instruction which judges whether a drawing color is the special feature to the color judging section 117. The color judging section 117 judges whether the drawing color shown using the drawing color information that it inputted is the special feature set up beforehand according to the special-feature judging instruction (S1203).

[0132] When a drawing color is not the special feature in step S1203, the color judging section 117 outputs a judgment result to a printer driver 112. A printer driver 112 outputs the color conversion command and drawing color information which added the attribute of the color matching approach (the default color matching approach when there is no assignment) specified through the interface section 118 to the color transform engine 113 according to the judgment result of the color judging section 117 (S1204).

[0133] Consequently, in the color transform engine 113, color matching processing to drawing color information is performed using the specified color matching approach. Moreover, a printer driver 112 changes a drawing instruction into the drawing instruction of printer 114 proper at coincidence.

[0134] Then, a printer driver 112 inputs the drawing color information after color matching processing from the color transform engine 113 (S1205), and outputs it to a printer 114 with the drawing instruction after conversion (S1206).

[0135] On the other hand, when it is the special feature in step S1203, the color judging section 117 outputs a judgment result to a printer driver 112. A printer driver 112 is outputted to a printer 114 with the drawing instruction changed into the drawing instruction of printer 114 proper, without outputting the drawing color information that it inputted to the color transform engine 113 according to the judgment result of the color judging section 117 (S1206).

[0136] Thus, in being the same as that of the special feature, in order according to the color transform-processing equipment of the gestalt 6 of operation, and its approach to judge whether the drawing color for drawing the candidate for drawing is the same as that of the special feature which a matching error tends to produce, and not to perform color matching processing, a matching error can be avoided positively and a suitable printer output can be obtained.

[0137] In addition, when, making applicable to drawing graphic images which expressed in red, blue, and a yellow rectangle field, such as a bar graph, for example, it is judged about red, blue, and each yellow drawing color whether it is the special feature. Therefore, in one candidate for drawing, the color to which color matching processing is performed, and the color which is not given may arise.

[0138] [Gestalt 7 of operation] The color transform-processing equipment of the gestalt 7 of operation enables a setup of the special feature within a printer driver 112.

[0139] In case it chooses that a user performs color matching processing, a printer driver 112 is operated and the drawing attribute of the every for drawing is set up. Then, a user becomes possible [ setting up a desired drawing color as a special feature ] by enabling it to specify the special feature from the interface section 118.

[0140] Although the explanation is omitted here since the configuration of the color transform-processing equipment of the gestalt 7 of operation is the almost same configuration as the thing of drawing 11 , it differs in that a user can specify the special feature as the color judging section 117 through the interface section 118, as for the thing of drawing 11 .

[0141] And in case a user specifies the existence and the color matching approach of color matching, in step S1203 shown in drawing 12 , the special feature set up itself [ user ] is used for the special-feature judging by the color judging section 117 by setting the desired special feature as the color judging section 117 through the interface section 118. In addition, about actuation of the color transform-processing equipment of the gestalt 7 of operation, except using the special feature which the user set up, since it is as being shown in drawing 12 , explanation is omitted here.

[0142] Thus, according to the color transform-processing equipment of the gestalt 7 of operation, and its approach, since a user can set up the desired special feature himself, the user himself can optimize color matching processing.

[0143] [Gestalt 8 of operation] In the gestalten 6 and 7 of operation, although it decided to control color matching processing by the printer driver 112, by these, only the color matching approach common to the existence of color matching and the whole color picture information (document) containing at least one candidate for drawing was able to be specified. This is because the printer driver 112 does not support color matching processing of the every for drawing.

[0144] Then, while the gestalt 8 of operation can change the color matching approach for every candidate for drawing by adding the function in which the class for drawing can be judged to a printer driver 112, a setup of the different special feature for every candidate for drawing of it is attained.

[0145] Drawing 13 is the block diagram of the color transform-processing equipment of the gestalt 8 of operation. In drawing 13 a printer driver 112 It enables it to specify the color matching approach through the interface section 118 for every the class for drawing, for example, a bitmapped image, alphabetic character, and graphic image. The class judging section 130 for drawing which judges the class for drawing based on the inputted drawing instruction, The attribute information on the color matching approach according to the class for [ which was specified through the interface section 118 ] drawing is held. According to the judgment result of the class judging section 130 for drawing, it has the matching approach change section 131 which generates color conversion command which is different for every class for drawing, respectively. In addition, since it is the same as that of what is shown in drawing 11 about other configurations, those explanation is omitted here.

[0146] By the color transform-processing equipment of the gestalt 8 of operation, and its approach In a printer driver 112, the judgment of the class for drawing and assignment of the color matching approach according to the class for drawing are written as it is possible. The change of the color matching approach when not being a setup (gestalt 2 of operation) of the different special feature for every candidate for drawing, and the case of the special feature and the special feature (gestalt 3 of operation), It becomes possible to perform the special-feature processing (gestalt 5 of operation) performed in a setup of the special feature, and the setting (gestalt 4 of operation) list of the color matching approach in the case of the special feature only when the candidate for drawing is an alphabetic character. In addition, about the detail of these processings, although there is a difference called a setup from an application program and a setup from a printer driver, since it is the same about the contents of processing, detailed explanation is omitted here. In addition, of course, when a printer driver 112 is that as for which assignment of the color matching approach is not made to every [ for drawing ], it cannot be overemphasized that the color matching approach in the case of the special feature can be specified.

[0147] Thus, according to the color transform-processing approach of the gestalt 8 operation, and its approach, by the printer driver 112, the judgment of the class for drawing and the change of the color matching approach according to the class for drawing are written as it is possible. The user himself can optimize color matching processing, and even if it is the case where the drawing color which a matching error tends to produce for [ of a specific class ] drawing is contained, generating of a matching error can be prevented according to an individual for every candidate for drawing.

[0148] In addition, although Profile X and the solid blue which are inferior in solid yellow and green reappearance although are not explained in the gestalten 1-8 of operation, and solid blue and red reproducibility are excellent for example, and red reappearance are inferior, suppose that the profile Y which is excellent in solid yellow and green reproducibility existed. In this case, according to the judgment result by the color judging section mentioned above, although it is not impossible to create one profile by which both advantage was merged, either, you may constitute so that both profiles can be used properly.

[0149] The color transform-processing approach explained in the gestalten 1-8 of the above operation can be programmed, respectively, and computers, such as a floppy disk, a hard disk, CD-ROM, and DVD, can record these on the record medium which can be read. And processing mentioned above can be performed by making it perform by making a program read from these record media to a computer. Moreover, the above-mentioned program can be distributed by distributing a record medium, and it can also distribute through a network.

[0150]

[Effect of the Invention] As explained above, according to the color transform-processing equipment (claim 1) concerning this invention A color judging means to judge whether \*\*\*\* is the same as that of the specific color specified beforehand for every drawing color for drawing the

candidate for drawing in the inputted color picture information, When judged with it not being the same as that of a specific color with a color judging means, color matching processing is performed to the drawing color concerned using the color matching approach specified beforehand. Since the drawing color concerned was equipped with a color conversion means to be made not to perform color matching processing when judged with it being the same as that of a specific color with a color judging means, a matching error can be avoided positively and color matching processing in which it was suitable for every drawing color can be performed.

[0151] When the color matching approach is specified for every candidate for drawing according to the color transform-processing equipment (claim 2) concerning this invention, in color transform-processing equipment according to claim 1 moreover, a color judging means It judges whether a drawing color is the same as a specific color for every candidate for drawing. A color conversion means Color matching processing is performed using the color matching approach to the drawing color judged that is not the same as that of a specific color with a color judging means. In order not to perform color matching processing to the drawing color judged that is the same as that of a specific color with a color judging means, To the color which restricts to the specific candidate for drawing and a matching error tends to produce, the error concerned is avoidable and processing in which the color which does not perform color matching for drawing is chosen can be performed.

[0152] Moreover, a color judging means to judge whether a drawing color is the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in the inputted color picture information according to the color transform-processing equipment (claim 3) concerning this invention, When judged with it not being the same as that of a specific color with a color judging means, color matching processing is performed to the drawing color concerned using the color matching approach specified beforehand. Since the drawing color concerned was equipped with a color conversion means to perform color matching processing, by the color matching approach specified beforehand and different approach based on the information set up beforehand when judged with it being the same as that of a specific color with a color judging means, While being able to perform color matching processing in which it was suitable for every drawing color, the printer output which suppressed the error can be obtained.

[0153] When the color matching approach is specified for every candidate for drawing according to the color transform-processing equipment (claim 4) concerning this invention, in color transform-processing equipment according to claim 3 moreover, a color judging means It judges whether a drawing color is the same as a specific color for every candidate for drawing. A color conversion means Color matching processing is performed using the specified color matching approach to the drawing color judged that is not the same as that of a specific color with a color judging means. In order to perform color matching processing by the color matching approach specified to the drawing color judged that is the same as that of a specific color with the color judging means, and different approach, Even if it is the case where the color which a matching error tends to produce is contained in the candidate for drawing of the same class, the optimal matching approach can be used for every color, and the output which suppressed the error can be obtained.

[0154] Moreover, according to the color transform-processing equipment (claim 5) concerning this invention, it sets to the color transform-processing equipment of any one publication of claim 1-4. An alphabetic character judging means to judge whether the candidate for drawing in color picture information is an alphabetic character is included. Furthermore, a color judging means Since it judges whether the drawing color of the alphabetic character concerned is the same as a specific color when judged with the candidate for drawing being an alphabetic character with an alphabetic character judging means, it is few, and a matching error can be suppressed and that change of a color becomes discontinuity can obtain a natural output. That is, it can prevent that a matching error generates the object containing the color which performs adoption or rejection and selection of matching as an alphabetic character which is not almost in case gradation is included.

[0155] Moreover, according to the color transform-processing equipment (claim 6) concerning this invention, in color transform-processing equipment according to claim 2 or 4, since it is

beforehand specified for every candidate for drawing, a specific color can perform color matching processing of having been suitable for the candidate for drawing, and can obtain a suitable output.

[0156] Moreover, according to the color transform-processing equipment (claim 7) concerning this invention, in color transform-processing equipment according to claim 4, since the color matching approach for the drawing color judged that is the same as that of a specific color with the color judging means is beforehand specified for every candidate for drawing, it can perform suitable color matching processing for every candidate for drawing.

[0157] Moreover, in the color transform-processing equipment of any one publication of claim 1-5, a color picture output unit is a color printer, and since it is a color corresponding to the primary color of the coloring material used for a color printer, a specific color is reproducible with sufficient coloring of the drawing color of the primary color for drawing according to the color transform-processing equipment (claim 8) concerning this invention.

[0158] Moreover, according to the color transform-processing equipment (claim 9) concerning this invention, in the color transform-processing equipment of any one publication of claim 1-5, since it is cyanogen, a Magenta, yellow, black, red, Green, blue, and White, a specific color can obtain the adoption or rejection and selection of matching, and the output which suppressed the error generally to the color which a matching error generally tends to produce.

[0159] Moreover, since it had an assignment means to specify the color of arbitration as a specific color, based on the information set up further beforehand in the color transform-processing equipment of any one publication of claim 1-7 according to the color transform-processing equipment (claim 10) concerning this invention, the adoption or rejection and selection of matching according to liking of a user are attained, and a suitable output can be obtained.

[0160] Moreover, according to the color transform-processing equipment (claim 11) concerning this invention, in color transform-processing equipment according to claim 10, since an assignment means specifies the color matching approach of arbitration as the color matching approach based on the information set up further beforehand, it can perform color matching processing according to liking of a user.

[0161] Moreover, according to the color transform-processing equipment (claim 12) concerning this invention, in color transform-processing equipment according to claim 11, since an assignment means specifies the color matching approach of arbitration for every candidate for drawing included in color picture information, it can perform suitable color matching processing for every candidate for drawing according to liking of a user.

[0162] Moreover, according to the color transform-processing equipment (claim 13) concerning this invention, in the color transform-processing equipment of any one publication of claim 10-12, since it is prepared in the application program which generates color picture information, an assignment means is reproducible with sufficient coloring of the drawing color of the primary color for drawing. The adoption or rejection and selection of matching according to liking of a user become possible easily, and a more suitable output can be obtained.

[0163] Moreover, according to the color transform-processing equipment (claim 14) concerning this invention, in the color transform-processing equipment of any one publication of claim 10-12, since it is prepared in the device driver which outputs color picture information to a color picture output unit, the adoption or rejection and selection of matching of an assignment means are attained with the gestalt independent of application, and it can obtain a more suitable output.

[0164] Moreover, the color judging process of judging whether a drawing color being the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in the inputted color picture information according to the color transform-processing approach (claim 15) concerning this invention, The 1st color conversion process which performs color matching processing to the drawing color concerned using the color matching approach specified beforehand when judged with it not being the same as that of a specific color at a color judging process, Since the 2nd color conversion process which is made not to perform color matching processing is included in the drawing color concerned when judged with it being the

same as that of a specific color at a color judging process, a matching error can be avoided positively and color matching processing in which it was suitable for every drawing color can be performed.

[0165] Moreover, according to the color transform-processing approach (claim 16) concerning this invention, it sets to the color transform-processing approach according to claim 15. When the color matching approach is specified for every candidate for drawing, a color judging process It judges whether a drawing color is the same as a specific color for every candidate for drawing. The 1st color conversion process Color matching processing is performed using the color matching approach to the drawing color judged that is not the same as that of a specific color at the color judging process. The 2nd color conversion process In order not to perform color matching processing to the drawing color judged that is the same as that of a specific color at a color judging process, even if it is the case where the color which a matching error tends to produce in the inside for [ one ] drawing is contained, color matching processing in which it was suitable for every drawing color can be performed.

[0166] Moreover, the color judging process of judging whether a drawing color being the same as the specific color specified beforehand for every drawing color for drawing the candidate for drawing in the inputted color picture information according to the color transform-processing approach (claim 17) concerning this invention, The 1st color conversion process which performs color matching processing to the drawing color concerned using the color matching approach specified beforehand when judged with it not being the same as that of a specific color at a color judging process, Since the 2nd color conversion process which performs color matching processing is included in the drawing color concerned by the color matching approach specified beforehand and different approach based on the information set up beforehand when judged with it being the same as that of a specific color at a color judging process, While being able to perform color matching processing in which it was suitable for every drawing color, the printer output which suppressed the error can be obtained.

[0167] Moreover, according to the color transform-processing approach (claim 18) concerning this invention, it sets to the color transform-processing approach according to claim 17. When the color matching approach is specified for every candidate for drawing, a color judging process It judges whether a drawing color is the same as a specific color for every candidate for drawing. The 1st color conversion process Color matching processing is performed using the color matching approach specified to the drawing color judged that is not the same as that of a specific color at the color judging process. The 2nd color conversion process In order to perform color matching processing by the color matching approach specified to the drawing color judged that is the same as that of a specific color at the color judging process, and different approach, Even if it is the case where the color which a matching error tends to produce is contained in the candidate for drawing of the same class, the optimal matching approach can be used for every color, and the output which suppressed the error can be obtained.

[0168] Moreover, according to the color transform-processing approach (claim 19) concerning this invention, it sets to the color transform-processing approach of any one publication of claim 15-18. The alphabetic character judging process of judging whether the candidate for drawing in color picture information being an alphabetic character is included. Furthermore, a color judging process Since it judges whether the drawing color of the alphabetic character concerned is the same as a specific color when judged with the candidate for drawing being an alphabetic character at an alphabetic character judging process, it is few, and a matching error can be suppressed and that change of a color becomes discontinuity can obtain a natural output. That is, it can prevent that a matching error generates the object containing the color which performs adoption or rejection and selection of matching as an alphabetic character which is not almost in case gradation is included.

[0169] Moreover, according to the color transform-processing approach (claim 20) concerning this invention, in the color transform-processing approach according to claim 16 or 18, since it is beforehand specified for every candidate for drawing, a specific color can perform color matching processing of having been suitable for the candidate for drawing, and can obtain a suitable output.

[0170] Moreover, according to the color transform-processing approach (claim 21) concerning this invention, in the color transform-processing approach according to claim 18, since the color matching approach for the drawing color judged that is the same as that of a specific color at the color judging process is beforehand specified for every candidate for drawing, it can perform suitable color matching processing for every candidate for drawing.

[0171] Moreover, in the color transform-processing approach of any one publication of claim 15-19, a color picture output unit is a color printer, and since it is a color corresponding to the primary color of the coloring material used for a color printer, a specific color is reproducible with sufficient coloring of the drawing color of the primary color for drawing according to the color transform-processing approach (claim 22) concerning this invention.

[0172] Moreover, according to the color transform-processing approach (claim 23) concerning this invention, in the color transform-processing approach of any one publication of claim 15-19, since it is cyanogen, a Magenta, yellow, black, red, Green, blue, and White, a specific color can obtain the adoption or rejection and selection of matching, and the output which suppressed the error generally to the color which a matching error generally tends to produce.

[0173] Moreover, since the assignment process for specifying the color of arbitration as a specific color is included based on the information set up further beforehand in the color transform-processing approach of any one publication of claim 15-21 according to the color transform-processing approach (claim 24) concerning this invention, the adoption or rejection and selection of matching according to liking of a user are attained, and a suitable output can be obtained.

[0174] Moreover, according to the color transform-processing approach (claim 25) concerning this invention, in the color transform-processing approach according to claim 24, since an assignment process specifies the color matching approach of arbitration as the color matching approach based on the information set up further beforehand, it can perform color matching processing according to liking of a user.

[0175] Moreover, according to the color transform-processing approach (claim 26) concerning this invention, in the color transform-processing approach according to claim 25, since an assignment process specifies the color matching approach of arbitration for every candidate for drawing included in color picture information, it can perform suitable color matching processing for every candidate for drawing according to liking of a user.

[0176] Furthermore, since (claim 27) recorded the program to which the record medium concerning this invention in which computer reading is possible makes a computer perform the color transform-processing approach of any one publication of claim 15-26, by performing a computer for this, it can avoid a matching error positively and can perform color matching processing in which it was suitable for every drawing color.

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[Translation done.]

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**DESCRIPTION OF DRAWINGS**

[Brief Description of the Drawings]



[Drawing 1] It is the block block diagram of the color transform-processing equipment of the gestalt 1 of operation.

[Drawing 2] It is the flow chart which shows the flow of the whole color transform-processing approach of the gestalt 1 of operation.

[Drawing 3] In the color transform-processing approach of the gestalt 1 operation, it is the flow chart which shows the procedure of the color matching processing by the color transform engine.

[Drawing 4] In the color transform-processing equipment of the gestalt 2 of operation, it is the flow chart which shows the processing which sets up the special feature for every candidate for drawing.

[Drawing 5] In the color transform-processing approach of the gestalt 2 operation, it is the flow chart which shows the procedure of the color matching processing by the color transform engine.

[Drawing 6] In the color transform-processing approach of the gestalt 3 operation, it is the flow chart which shows the procedure of the color matching processing by the color transform engine.

[Drawing 7] In the color transform-processing approach of the gestalt 4 operation, it is the flow chart which shows the procedure of processing of setting up the color matching approach in the case of the special feature and the special feature for every candidate for drawing.

[Drawing 8] In the color transform-processing approach of the gestalt 4 operation, it is the flow chart which shows the procedure of the color matching processing by the color transform engine.

[Drawing 9] It is the block block diagram of the color transform-processing equipment of the gestalt 5 of operation.

[Drawing 10] In the color transform-processing approach of the gestalt 5 operation, it is the flow chart which shows the procedure of the color matching processing by the color transform engine.

[Drawing 11] It is the block block diagram of the color transform-processing equipment of the gestalt 6 of operation.

[Drawing 12] It is the flow chart which shows the color transform-processing approach of the gestalt 6 operation.

[Drawing 13] It is the block block diagram of the color transform-processing equipment of the gestalt 8 of operation.

[Description of Notations]

10,110 Application program

11,111 Drawing module

12,113 Color transform engine

13,112 Printer driver

14,114 Printer

15,115 Monitor profile

16,116 Printer profile

17,117 Color judging section

18,118 Interface section

90 Alphabetic Character Judging Section

130 Class Judging Section for Drawing

131 The Matching Approach Change Section

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[Translation done.]

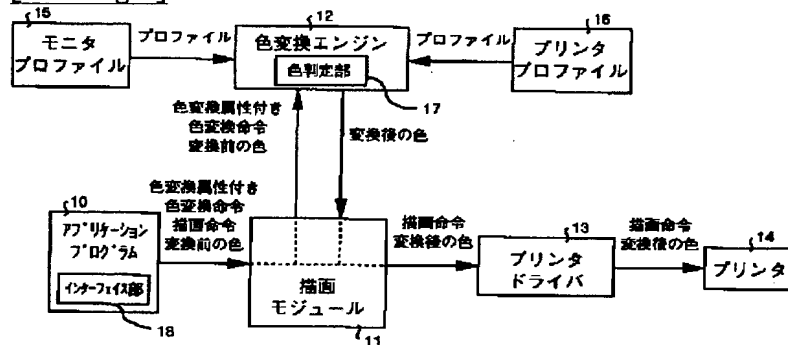
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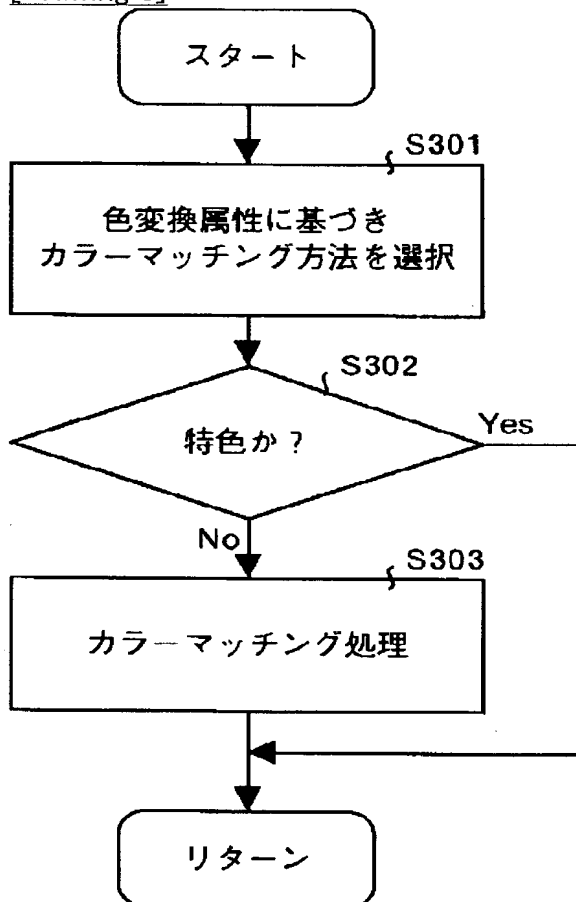
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## DRAWINGS

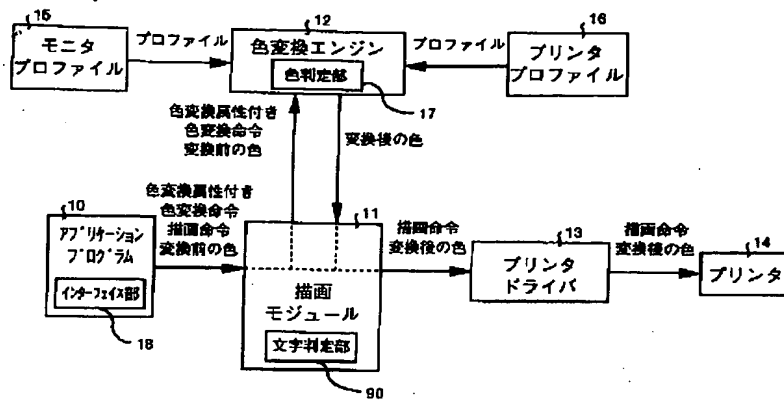
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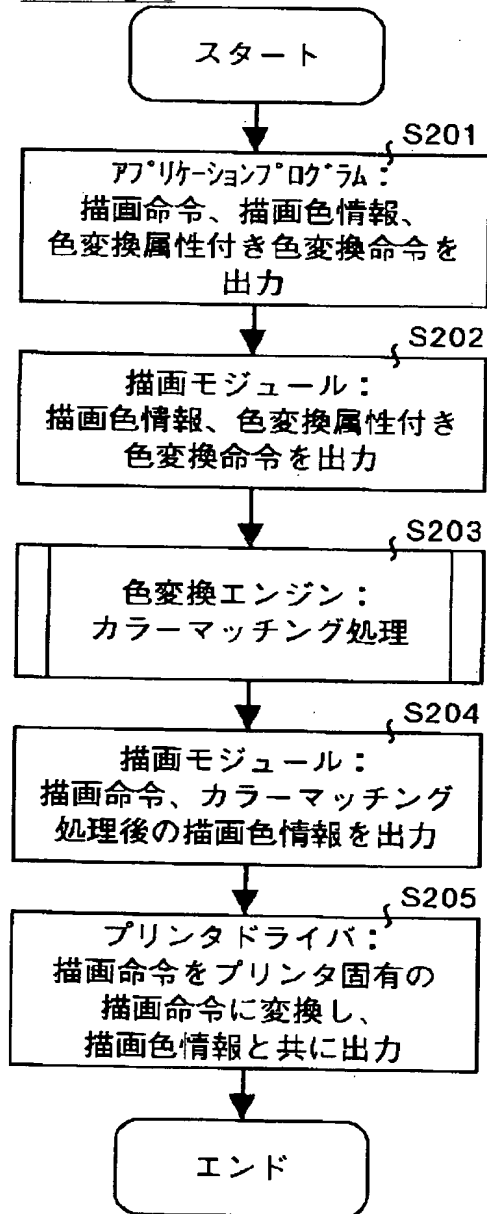
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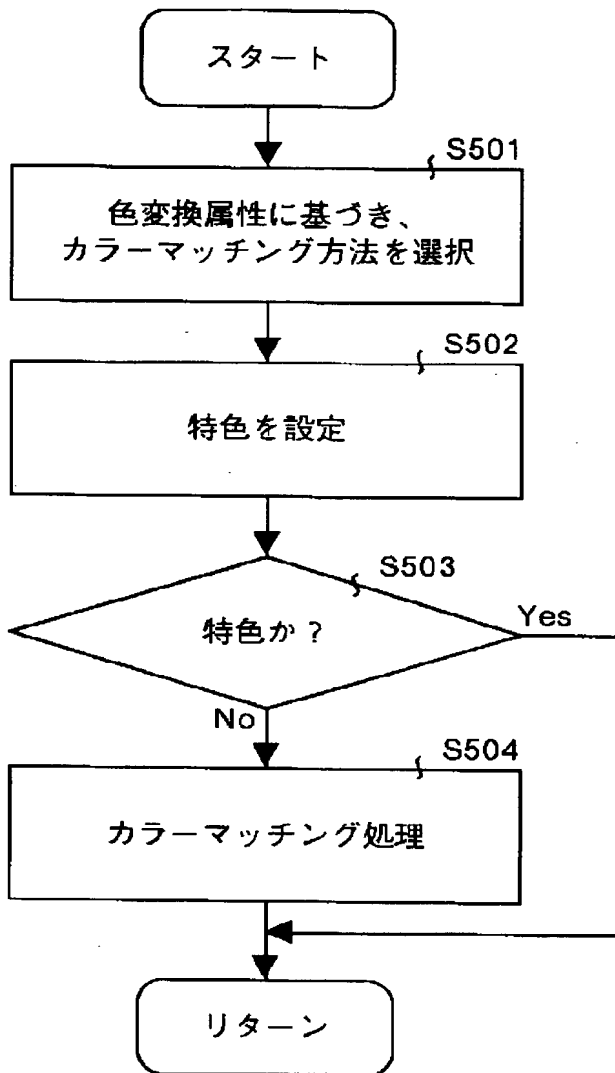
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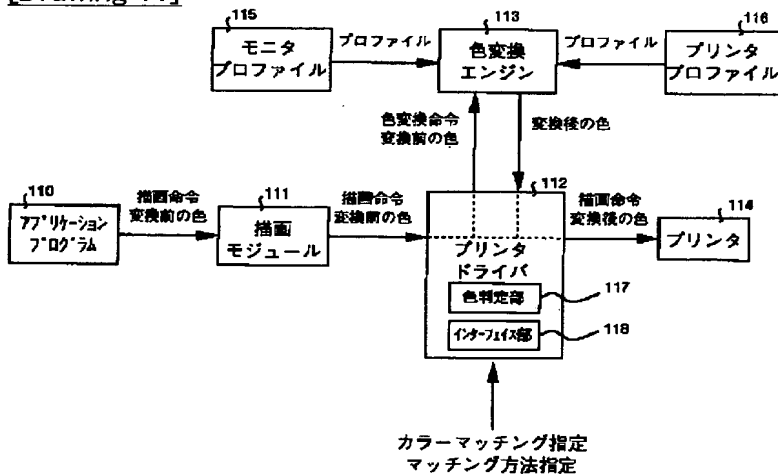
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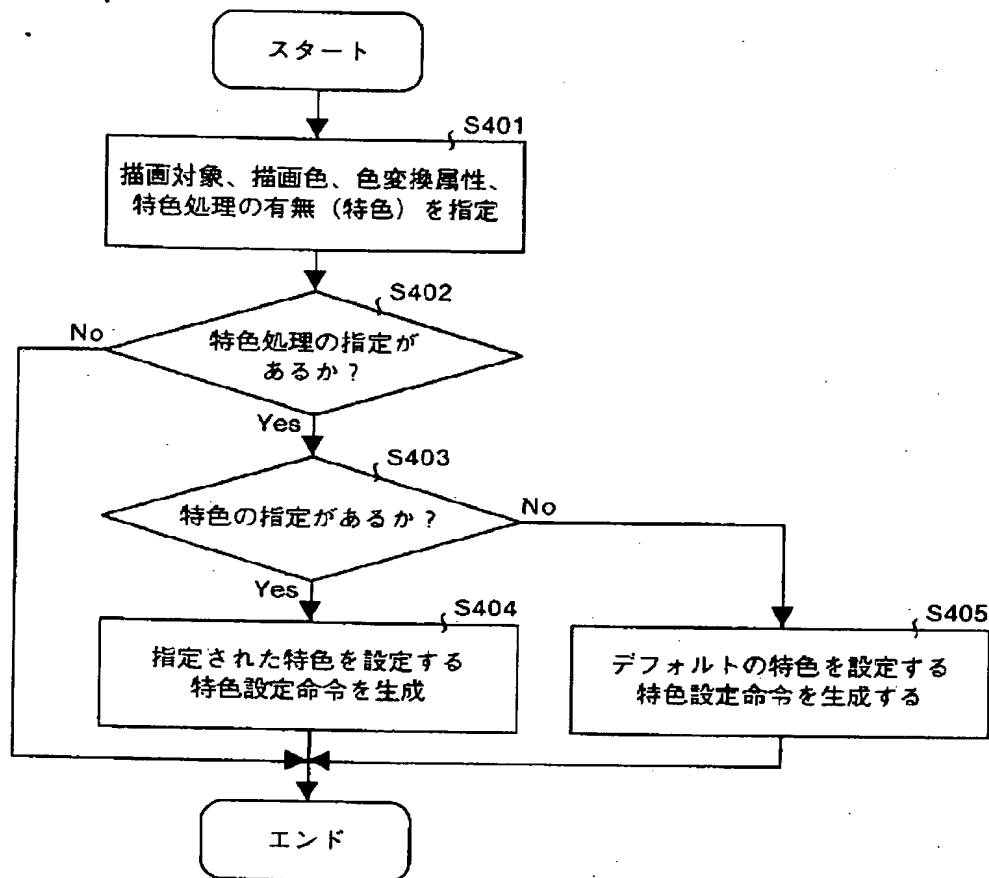
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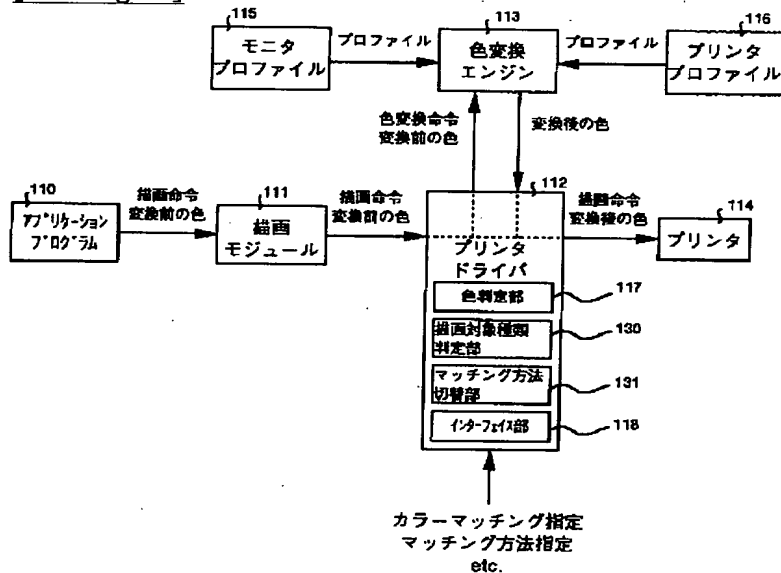
[Drawing 11]



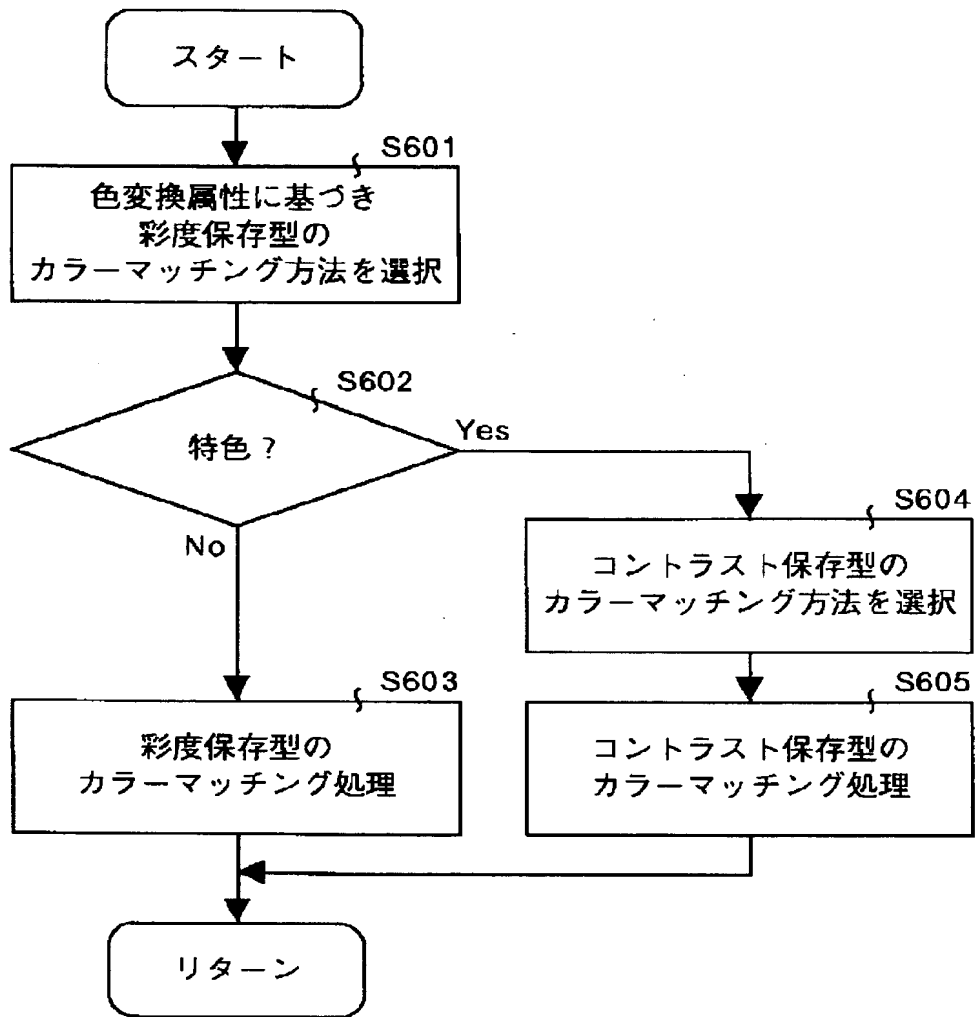
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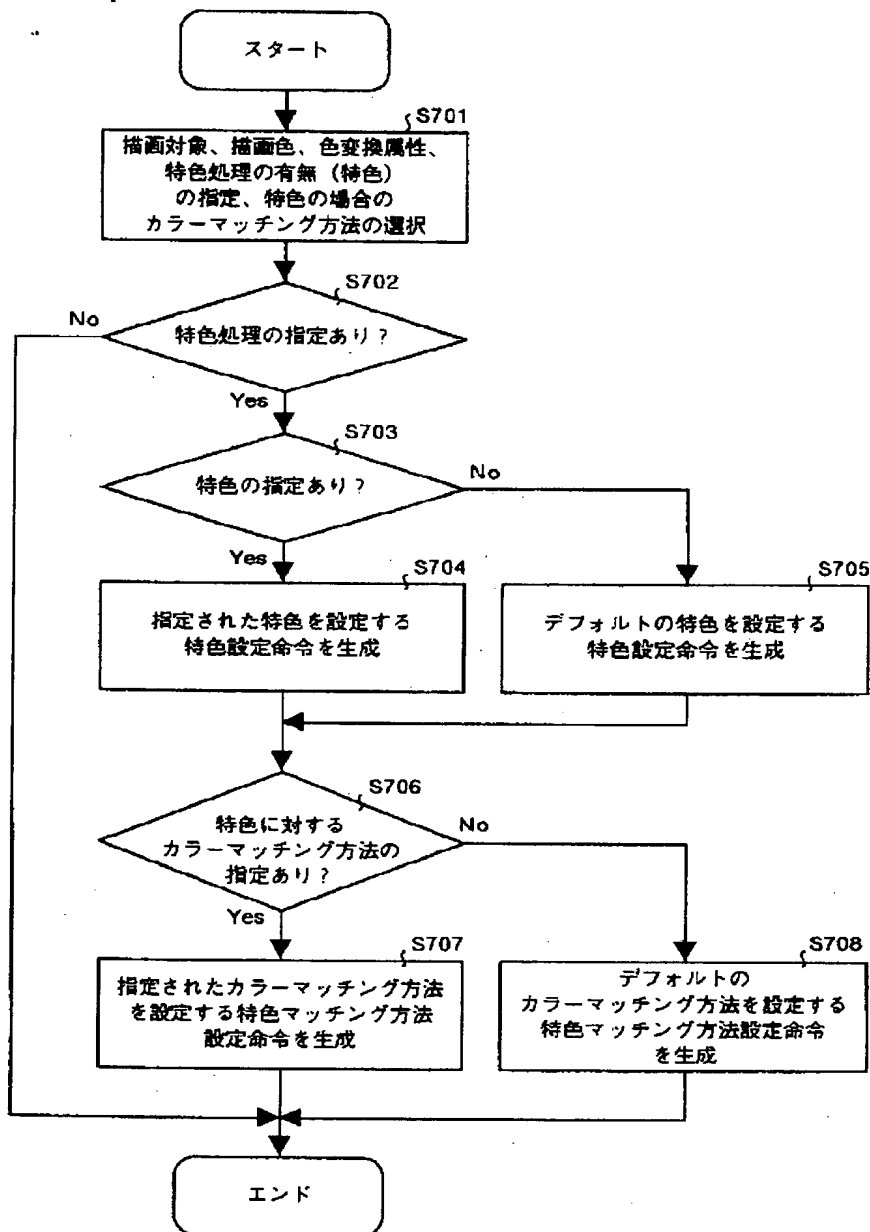
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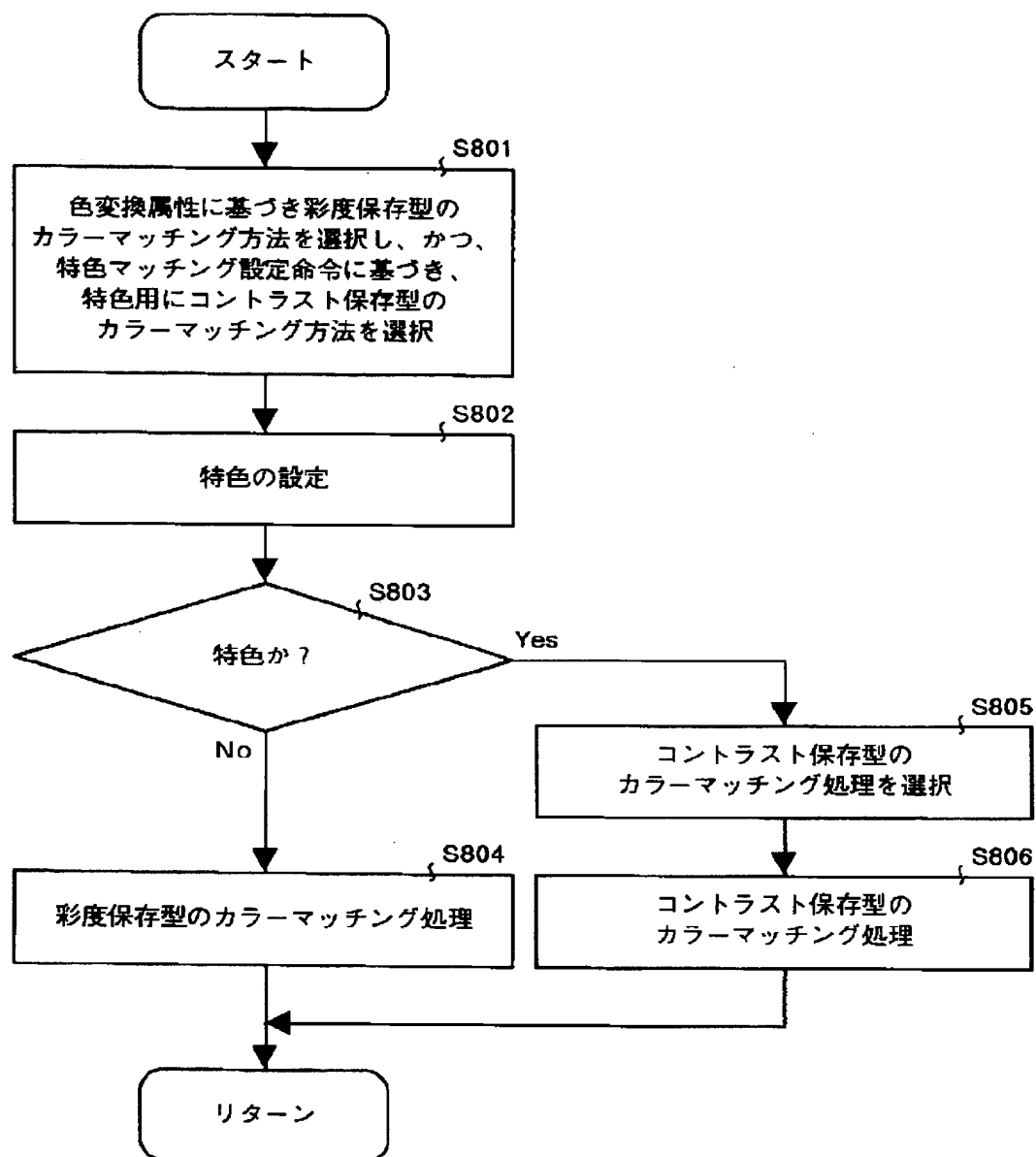
[Drawing 6]



[Drawing 7]

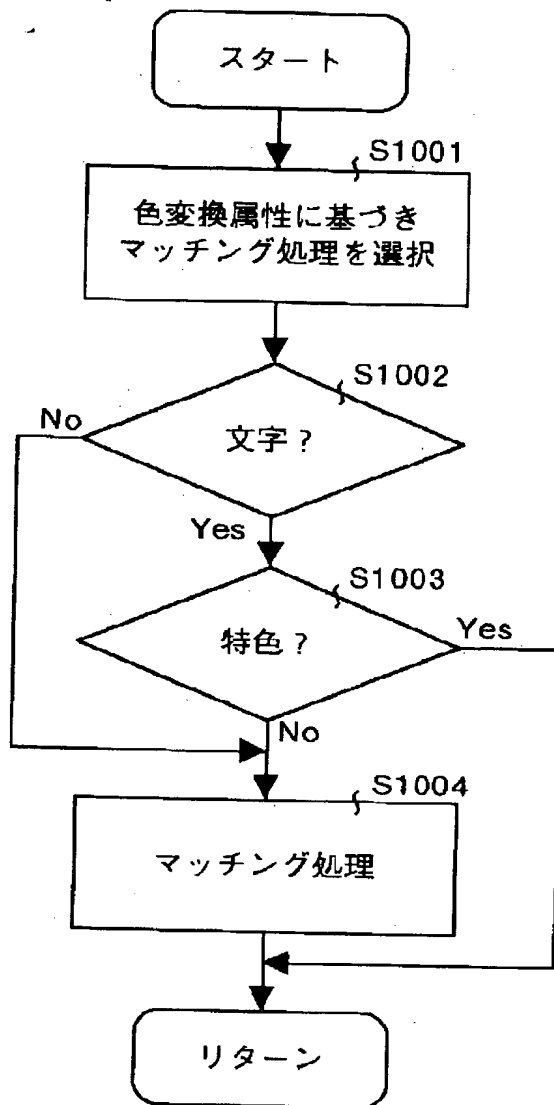


[Drawing 8]

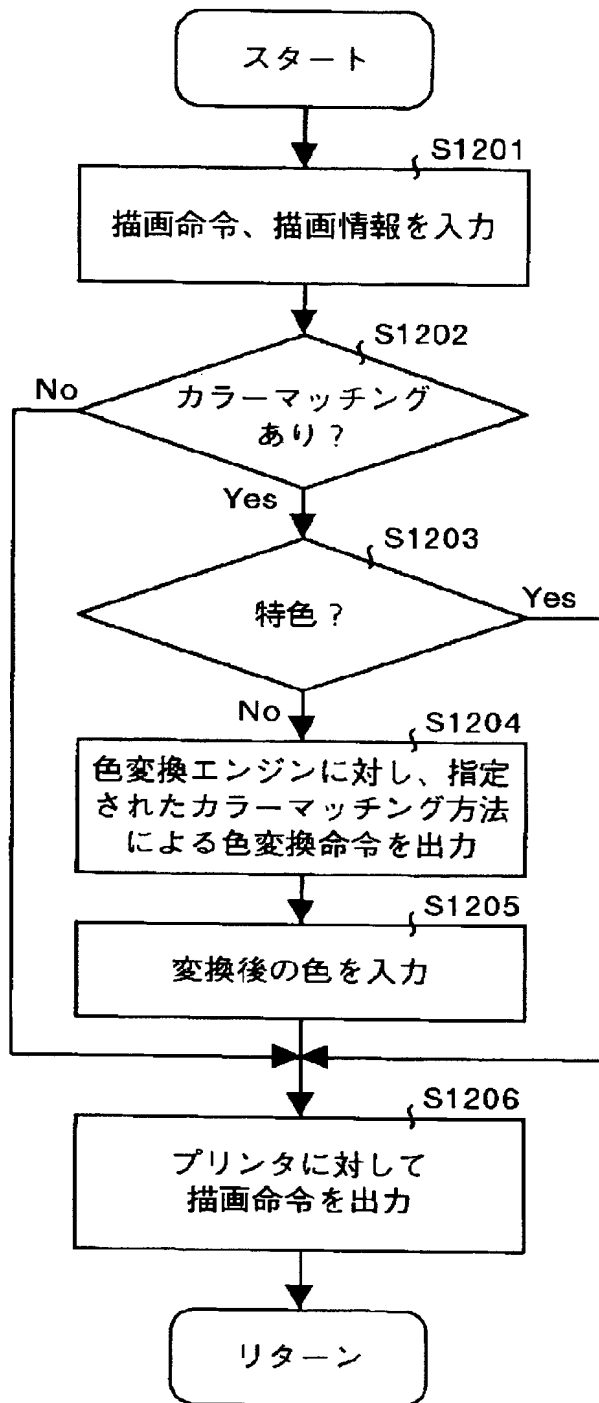


[Drawing 10]





[Drawing 12]



[Translation done.]

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